

Notice of Allowability

Application No.

09/196,683

Examiner

Jonathan S. Crepeau

Applicant(s)

MIZUNO, SEIJI

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/23/03.
2. ☒ The allowed claim(s) is/are 1,4-12 and 17-19.
3. ☒ The drawings filed on 20 November 1998 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Laleh Jalali on January 22, 2004.

The application has been amended as follows:

IN THE ABSTRACT:

Please replace the abstract with the following paragraph:

--The method of the present invention enhances the adhesive strength of a polymer electrolyte film via an adhesive and thereby manufactures a fuel cell having the a high reliability for the a gas sealing property. ~~The method exposes a joint body, which has been prepared by interposing a polymer electrolyte film between an anode and a cathode and bonding them, to an atmosphere having a temperature of 250C and a humidity of 50% over one hour (S110).~~ The method ~~then~~ provides a pair of separators and applies an adhesive on specific areas of the

separators, which are directly joined with the polymer electrolyte film (S120). The adhesive used here is a modified rubber adhesive that is a mixture of epoxy resin and modified silicone and has a modulus of elasticity of not greater than 10 MPa and a durometer A hardness of not greater than 90 after cure. The method subsequently lays the pair of separators upon the joint body and cures the adhesive for bonding the separators directly to the polymer electrolyte film (S130 and S140). ~~The process of step S110 causes the polymer electrolyte film to have a water content X of not greater than 4. This effectively ensures the sufficient adhesive strength of the polymer electrolyte film via the adhesive.--~~

Allowable Subject Matter

3. Claims 1, 4-12, and 17-19 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Independent claims 1, 8, 17, 18, and 19 each recite, among other features, a polymer electrolyte film directly bonded to a carbon separator via an adhesive, the adhesive having a modulus of elasticity of not greater than 10 MPa after cure (claims 1, 8, 17 and 18) or having a durometer A hardness of not greater than 90 after cure (claim 19). The art of record does not teach or fairly suggest this subject matter. JP 9-199145 discloses a fuel cell comprising an epoxy adhesive that bonds an electrolyte to a carbon separator, but fails to disclose the hardness or elastic modulus of the adhesive after cure. Both Chow et al (5,284,718) and Pereira et al

(6,044,842) fail to make up for this deficiency. Although Chow et al. teach that extrudable fuel cell sealant material is disadvantageously not resilient (col. 3, line 6), the artisan would not be motivated to further look to Pereira, which defines the relationship among resiliency, hardness, and elastic modulus of rubber compounds under conditions of relatively small strain (col. 3, line 52). This is because Pereira et al. is directed to a gasketless connecting adapter and is not believed to be analogous art. Accordingly, as there is not a fair suggestion of the instantly claimed elastic modulus and durometer hardness ranges in the art of record, the instant claims are allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Jonathan Crepeau
Patent Examiner
Art Unit 1746
January 22, 2004


BRUCE F. BELL
PRIMARY EXAMINER
GROUP 1746